

## **Final Project – Elder's Quorum Contact tools / HT Reporting Tool**

### **Executive Summary:**

In my ward's Elder's Quorum we use a Google Form to collect home teaching reports. However, the task of organizing the results from the form to a simple percentage is a manual task. For this reason I have built a tool whose purpose is to gather the data from the Google Form and automatically compile it into a report on home teaching (a final percentage). In addition to this several other functions were built into the program. First, the spreadsheet stores the names, emails, and phone numbers of the quorum members. With the click of a button I can send a mass-text or a mass-email to all the elders. Second, once the numbers are compiled an email can be sent to the need-to-know parties.

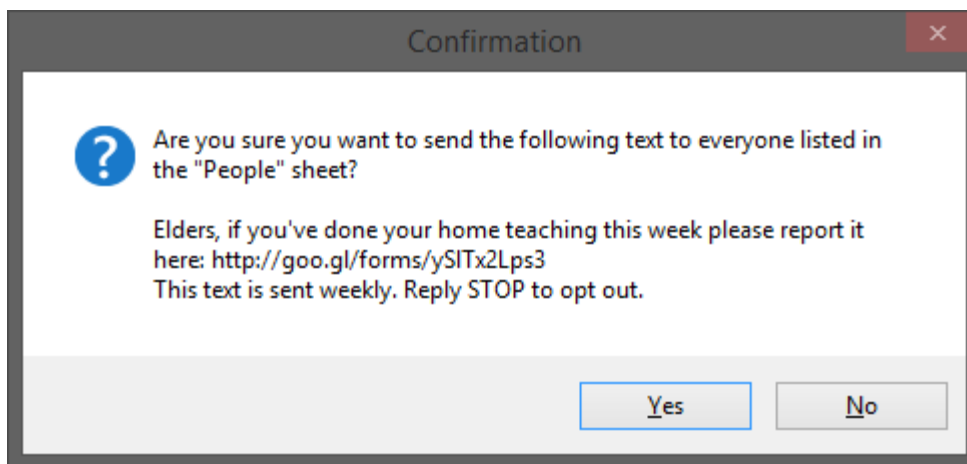
## Implementation:

### Part A – Sending mass texts and emails

The first part of the project which I built was the mass-text / mass-email functionality. This code was based off the code from the SendReminders class example, but adapted to fit my purposes. In the “Send Text or Email” sheet there are two sections, “Send Text” or “Send Email”. In the “Send Text” Section there is a box marked as “Message:” where the user inputs the message they wish to send. In the adjacent cell the number of characters in this “Message:” cell are reported (but it reports that there are 4 additional characters because when the actual text is sent there will be 4 more characters from the email subject).

<b>Send Text:</b>	
Message:	
Elders, if you've done your home teaching this week please report it here: <a href="http://goo.gl/forms/ySITx2Lps3">http://goo.gl/forms/ySITx2Lps3</a> This text is sent weekly. Reply STOP to opt out.	<b>Send Text</b>
	characters:158

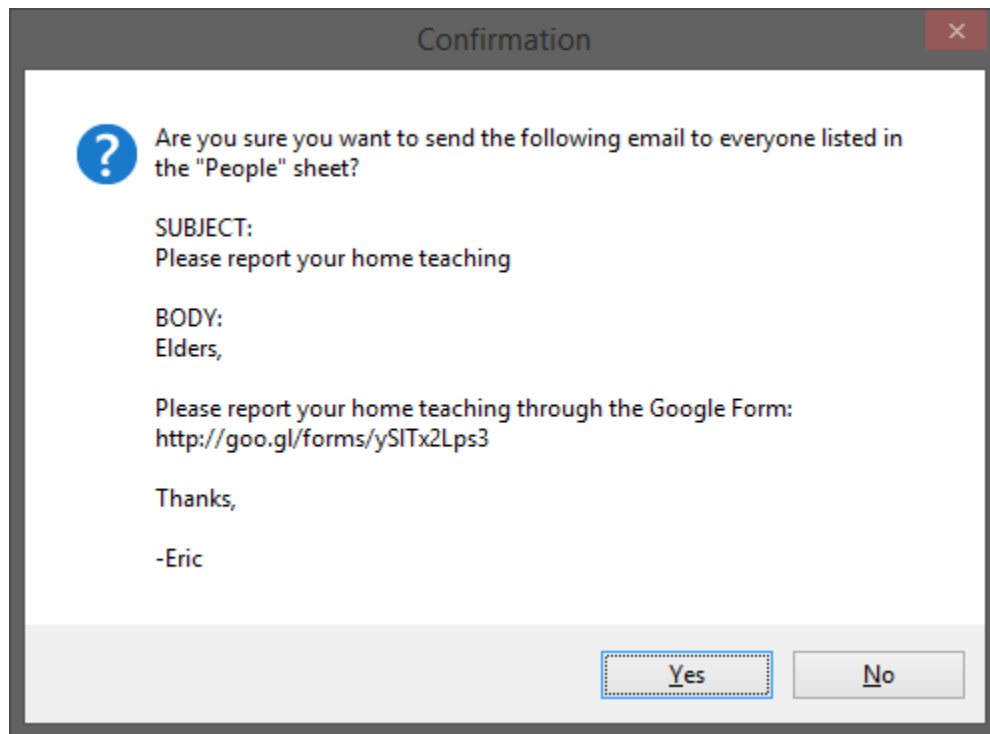
When the user clicks the “Send Text” button the program prompts the user for a Gmail username and password, and then displays a confirmation message box. If the user chooses to send the message than it is sent.



Similarly, in the “Send Email” section there is a place to type both the subject line and body of an email.

<b><u>Send Email:</u></b>			
Subject:			
Please report your home teaching			
Email Body:			
Elders,  Please report your home teaching through the Google Form: <a href="http://goo.gl/forms/ySITx2Lps3">http://goo.gl/forms/ySITx2Lps3</a>  Thanks,  -Eric		<b>Send Email</b>	

Like the text function when the user clicks the “Send Email” button the program prompts the user for a Gmail username and password, and then displays a confirmation message box. If the user chooses to send the message than it is sent.



To accomplish this text/email functionality the code from the SendReminders class example was adapted (using the same People and Carriers sheets), except it was changed to send the same message to everyone on the list, and not personalize the message to each recipient.

Part B – Pull home teaching data from Google Sheet

In my ward we use a Google Form to report home teaching (see images below of the form and the spreadsheet of responses).

## 2014 Home Teaching Monthly Report (Provo Peak 5th Ward, EQ)

This form is to be used as a method for Home Teachers to report each month. This information will be used by the Elders Quorum Presidency, Bishopric, and Ward Counsel as circumstances permit.

**\* Required**

**Family Name \***  
Please list "family/last name", THEN the "first name" of head(s) of household. (e.g. Smith, Joseph)

**What is your companion's name? \***  
Last name, First name

**Month \***  
What month is this report for?

- ☐ 01 - January
- ☐ 02 - February
- ☐ 03 - March
- ☐ 04 - April
- ☐ 05 - May
- ☐ 06 - June
- ☐ 07 - July
- ☐ 08 - August
- ☐ 09 - September
- ☐ 10 - October
- ☐ 11 - November
- ☐ 12 - December

**Did you complete your home teaching assignment? \***  
Please select the options most applicable (you may select more than one)

What is your name? \*

Last name, First name

Is there anything you need from the Elders Quorum Presidency to help you as Home Teachers? \*

☐ No thank you.

☐ Other:

What is one blessing/lesson that has touched your life while serving this family this month?

Please take a moment to thoughtfully and prayerfully reflect on this question. A response is not required, but one is welcome if you would like to share.

Submit

Never submit passwords through Google Forms.

Home Teaching Monthly Report (Responses) ★							
File Edit View Insert Format Data Tools Form Add-ons Help All changes saved in Drive							
fx   Wardell, Eric							
	A	B	C	D	E	F	G
1	Timestamp	Family Name	Month	What is your name?	What is your companion's name?	Did you complete your home teaching assignment?	How can the quorum help serve the family next month? Are they in need of assistance?
137	2/9/2015 9:14:05	Pearce, Austin	01 - January	LeBaron, Dean	Chamberlain, Jan	No attempt made this month	No thank you.
138	2/16/2015 11:20	Lyman, Riley	02 - February	Benson, Taylor	Lambson, Berji	Met with family in person to complete home teaching assignment	No thank you.
139	2/16/2015 11:21	Reynolds, Marc	02 - February	Benson, Taylor	Lambson, Berji	Met with family in person to complete home teaching assignment	No thank you.
140	2/16/2015 22:54	pearce, Austin	02 - February	Chamberlain, Jamison	Le baron, Dean	Met with family in person to complete home teaching assignment	No thank you.
141	3/1/2015 14:36:	Rucker, Michael	02 - February	ascanio, javier	romney, jackson	Met with family in person to complete home teaching assignment	No thank you.
142	3/1/2015 14:37:	Reynolds, Martin	02 - February	Ascanio, javier	romney, jackson	Contacted family via phone call (spoke with family)	No thank you.
143	3/1/2015 14:37:	Roberto, christian	02 - February	Ascanio, javier	romney, jackson	No attempt made this month	No thank you.
144	3/1/2015 14:37:	Roberto, christian	02 - February	Ascanio, javier	romney, jackson	No attempt made this month	No thank you.
145	3/1/2015 14:39:	Mejia, Dan	02 - February	Wardell, Eric	Ambler, Justin	Met with family in person to complete home teaching assignment	No thank you.
146	3/1/2015 14:50:	Unklesbay, Ethan	01 - January	Eagar, Tom	Schull, Erik	No attempt made this month	No thank you.
147	3/1/2015 14:51:	Unklesbay, Ethan	02 - February	Eagar, Tom	Schull, Erik	No attempt made this month	No thank you.
148	3/1/2015 14:52:	McQuivey, Shayne	01 - January	Eagar, Tom	Schull, Erik	No attempt made this month	No thank you.
149	3/1/2015 14:53:	McQuivey, Shayne	02 - February	Eagar, Tom	Schull, Erik	Attempted to contact multiple times (phone/text, email, and house visit) and v	No thank you.
150	3/1/2015 15:00:	Rucker, Michael	02 - February	Romney, Jackson	Ascanio, Javier	Met with family in person to complete home teaching assignment	No thank you.
151	3/1/2015 15:20:	Leutze	02 - February	Kimball, hunter	Arce, carlo	No attempt made this month	No thank you.
152	3/1/2015 15:20:	Colver, Daniel	02 - February	Calvert, spencer	Pope, Mike	No attempt made this month	No thank you.
153	3/1/2015 15:21:	Schriever	02 - February	Kimball, hunter	Arce, Carlo	No attempt made this month	No thank you.
154	3/1/2015 15:36:	Benson	02 - February	Pearce, Austin	Schreiber, Eli	Met with family in person to complete home teaching assignment	No thank you.
155	3/1/2015 20:08:	Sanders, Matt	02 - February	Toronto, David	Faux, Robert	Met with family in person to complete home teaching assignment	No thank you.
156	3/2/2015 8:49:24	Hall, Elijah	02 - February	Schiller, Brett	Rucker, Michael	Met with family in person to complete home teaching assignment	No thank you.

Whenever I compile to data into a home teaching report complete with percentages I use an Excel spreadsheet with the different assignment, and I manually fill out the Excel sheet with data I find in the Google Sheet. I attempted to automate this task through VBA.

First, I found a way to pull the data from the Google Spreadsheet. When the user clicked the button marked “Import Home Teaching Data” they were prompted to insert the key to the Google Sheet, as seen below.

The image shows a web interface with a button labeled "Import Home Teaching Data". Below it is a "Google Sheets Key" dialog box. The dialog box has a title bar with a close button. Inside, there is a text input field containing a URL: <https://docs.google.com/spreadsheets/d/13WpAw3RfcbVS3q3GlcJY79K5eWvqkzIl4hG7Hzjrlmw/edit#gid=0>. The 44-character key "13WpAw3RfcbVS3q3GlcJY79K5eWvqkzIl4hG7Hzjrlmw" is highlighted with a red rectangle. Below the URL is a text input field with the placeholder text "Enter the Google Sheets key (see the example above)". At the bottom of the dialog is an "OK" button.

If the user did not provide a 44-character string then the program threw an error message.

The image shows a Microsoft Excel error message dialog box. The title bar says "Microsoft Excel". The message inside the dialog reads: "Incorrect number of characters in Google Sheets Key. (There should be 44 characters)". At the bottom of the dialog is an "OK" button.

By using a query I was able to grab the first 100 lines of whichever Google Sheet the user provided the key for.

25	Still loading...			
26				
27	1	Timestamp	Family Name	Month
28	2	2/16/2015 11:20	Lyman, Riley	02 - Å February
29	3	2/16/2015 11:21	Reynolds, Marc	02 - Å February
30	4	2/16/2015 22:54	pearce, Austin	02 - Å February
31	5	3/1/2015 14:36	Rucker, Michael	02 - Å February
32	6	3/1/2015 14:37	Reynolds, MartÅ-n	02 - Å February
33	7	3/1/2015 14:37	Roberto, christian	02 - Å February
34	8	3/1/2015 14:37	Roberto, christian	02 - Å February
35	9	3/1/2015 14:39	Mejia, Dan	02 - Å February
36				
37				
38				
39	10	3/1/2015 14:51	Unklesbay, Ethan	02 - Å February
40	11	3/1/2015 14:53	McQuivey, Shayne	02 - Å February
41	12	3/1/2015 15:00	Rucker, Michael	02 - Å February
42	13	3/1/2015 15:20	Leutze	02 - Å February
43	14	3/1/2015 15:20	Colver, Daniel	02 - Å February

Even though I was able to pull some data down, I was unable to easily sort it into a usable report, and so ultimately did not achieve my goal for this part. More on this subject is explained in the discussion of learning and conceptual difficulties encountered.

### Part C – Send report to interested parties

In this part I set up an additional email to be sent out. With the click of a button the home teaching numbers for the month could be sent out to interested parties. After providing login information for Gmail the user was prompted through a form for the emails to send the report to, and then given a confirmation message.

	A	B	C	D	E
1	<u>district</u>	<u>Matt</u>	<u>Javier</u>	<u>Daniel</u>	<u>Total</u>
2	Number taught	2	16	8	26
3	<u>Number of Families</u>	15	23	18	<u>56</u>
4	Percent taught	13%	70%	44%	<b>46%</b>
5					
6					
7					
8					
9					
10					

**Send Email of  
HT Numbers**

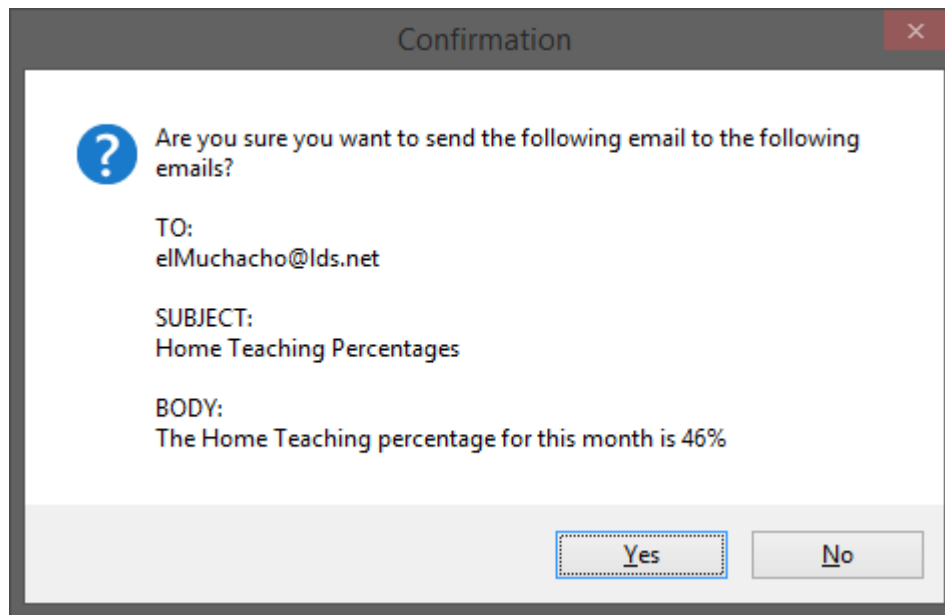
Enter Emails

×

Enter the emails to send the report to: (separated by commas)

OK





Through this means a report could be quickly sent.

## Discussion of learning and conceptual difficulties encountered

### *Learning:*

I found it very useful to get some more practice on sending out texts and emails from Excel, and I especially enjoyed making my own mass text/email program to fit my needs. In setting these things up I learned about how to make and use forms, how to effectively use message boxes, and I got better at using strings as I compiled comma-delimited email addresses into one single string.

I also learned how complex pulling data from the web can be. I was unable to finish the portion of my project that dealt with pulling data from Google Sheets and organizing it into a home teaching report. This is described in more detail in the following section.

### *Difficulties:*

When I initially had the idea to create an interface between Excel and Google Sheets I thought it would be rather trivial, I mean, they are both spreadsheet programs with extremely similar interfaces, how hard could it be?

Very hard apparently.

As I researched methods to pull data from a Google Spreadsheet to an Excel spreadsheet I found two possibilities. The first is proposed by a British man named Bruce McPherson who give his code on his website: <http://ramblings.mcpher.com/Home/excelquirks/get-data-from-google-docs>. I spent time trying to understand how his code works, and even tried copying it over into my workbook, but it did not work for me and the errors I were getting were way over my head. I realized that though his solution seemed the best of those I could find, trying to get his code to work for my project was probably far beyond the scope of this final project.

A second method I found was to simply use a web query to the Google Sheet page and pull down all the data contained therein. This did work for me, and instead of hard-coding the URL I created a form to prompt the user to enter the unique 44-character Key to a specific Google Sheet. Though I was able to download the data into a new sheet (as you will see if you click the button), I discovered that only the first 100 rows are imported. This would pose a problem unless someone regularly cleaned out the Responses Google Sheet to keep the number of rows used below 100. In other words, you wouldn't be able to store old data from past months in the Responses Google Sheet.

It was at this point in which I got stuck for an additional reason. I realized that the manner in which the Google Form was filled out varied with each user. Each elder in the quorum could enter his name in a different manner, which my code would have to figure out. I contemplated simply taking each name in the home-teaching assignments and searching for a response from that person, but did not try implementing this idea.

I think to truly build this project in a usable way there would have to be a revamp of the Google Form, as

trying to adapt VBA code to interface with the imperfect Results Google Sheet proved more difficult than I imagined. If the Google Form which collects responses had some sort of database which store the assignments then perhaps it would be easier to keep track of the reporting.

## **Assistance**

I did not receive any assistance from other people on my project. The (internet) help I received came through my own research, and the examples provided from class. All code that was used/adapted from others is well-noted in the comments.